REMARKS

Reconsideration and further examination are respectfully requested. Claims 29-43 have been cancelled without prejudice. Claims 1-28 are currently pending.

Rejections under 35 U.S.C. §102(e)

Claims 1, 2, 4, 6-8, 10 and 11 were rejected under 35 U.S.C. §102(e) as being anticipated by Gracon (U.S. Application 2002/0110134).

Gracon describes, in the Abstract "... A packet scheduler includes a packet manager interface, a policer, a congestion manager, a scheduler, and a virtual output queue (VOQ) handler. The policer assigns a priority to each packet. Depending on congestion levels, the congestion manager determines whether to send a packet based on the packet's priority assigned by the policer. The scheduler schedules packets in accordance with configured rates for virtual connections and group shapers. A scheduled packet is queued at a virtual output queue (VOQ) by the VOQ handler...."

With regard to controlling congestion, Gracon describes, at paragraph 45:

> "...[0045] A prior art random early detection process (RED) is a type of congestion management process. The RED process typically includes two parts: (1) an average queue size estimation; and (2) a packet drop decision. The RED process calculates the average queue size (Q_avg) using a low-pass filter and an exponential weighting constant (Wq). In addition, each calculation of the Q_avg is based on a previous queue average and the current queue size (Q_size). A new Q_avg is calculated when a packet arrives if the queue is not empty. The RED process determines whether to drop a packet using two parameters: a minimum threshold (MinTh) and a maximum threshold (MaxTh). When the Q_avg is below the MinTh, a packet is kept. When the Q_avg exceeds the MaxTh, a packet is dropped. If the Q_avg is somewhere between MinTh and MaxTh, a packet drop probability (Pb) is calculated. The Pb is a function of a maximum probability (Pm), the difference between the Q_avg and the MinTh, and the difference between the MaxTh and the MinTh. The Pm represents the upper bound of a Pb. A packet is randomly dropped based on the calculated Pb. For example, a packet is dropped if the total number of packets received is greater than or equal to a random variable (R) divided by Pb. Thus, some high priority packet may be inadvertently dropped..."

Applicants would respectfully submit that, when determining a drop probability for a queue, the Gracon reference uses information regarding fullness of its own queue.

In contrast, the claimed invention, as amended, now clearly recites that the drop probability for an ingress queue of a network device is determined based upon a level of congestion at an output queue of the device. For example, claim 1 recites "...A feedback output queuing method comprising ... determining a level of congestion at an output queue of a network device ... determining an ingress queue drop probability for an ingress queue associated with an ingress port of the network device based upon the level of congestion at the output queue... and dropping packets at the ingress port of the network device according to the ingress drop probability to reduce congestion at the output queue..." Thus applicants' claims are patentably distinct from Gracon, which neither describes nor suggests every limitation of applicants' claims. For at least this reason, claim 1 is patentably distinct from Gracon, and it is requested that the rejection be withdrawn.

Dependent claims 2-13 serve to add further patentable limitations to claim 1 and are allowable for at least the same reasons as claim 1.

Rejections under 35 U.S.C. §103

Claim 3 was rejected under 35 U.S.C. §103 as being unpatentable over Gracon in view of Cloonan (U.S. Application 2002/0009051). Claims 5, 12 and 13 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Gracon in view of Bonneau (U.S. Patent 6,671,258). Claims 14, 15, 17-19, 31-23, 25, 26, 29, 30, 32-34, 36-38, 40 and 41 were rejected as being unpatentable over Gracon in view of Barri (U.S. Patent 6,657,962). Claims 16 and 31 were rejected under 35 U.S.C. §103 as being unpatentable over Gracon in view of Barri as applied to claim 14 and

further in view of Cloonan. Claims 20, 27, 28, 35, 42 and 43 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gracon in view of Barri as applied to claim 14 and further in view of Bonneau.

Cloonan:

Cloonan describes, in the abstract:

"...Each packet of the present invention is assigned a priority level. The current data packet flow rate is detected. This data packet flow rate is quantized into at least one data rate level. The current buffer circuit depth is determined as is the priority associated with the current data packet. The probability that the current packet is either dropped or used is determined by using the current data packet service flow rate, the data packet priority, and the current buffer circuit depth..."

Thus Cloonan, like Gracon, uses information about the 'current buffer' to determine queue drop probability, as opposed to the claimed invention which calculates input queue drop probability based on output queue congestion.

Bonneau

Bonneau describes "The method of buffering packets in a digital communications device includes defining an n-level hierarchy of memory partitions, wherein each non-top level partition has one or more child partitions at an immediately lower level of the hierarchy. The memory partitions at the top-most level are pre-configured with a target memory occupancy size, and the target occupancy for each memory partition situated at a lower level is recursively computed in a dynamic manner based on the aggregate congestion of its parent partition, until the target

occupancies for the bottom-most memory partitions are determined..." Such a structure is fundamentally different from the claimed invention.

Barri:

Barri describes "...The method and system utilizes congestion indicators within the ingress system, egress system, and the switch fabric in conjunction with a coarse adjustment system and fine adjustment system within the ingress device and the egress device to intelligently manage the system..." However, Barri neither describes nor suggests calculates input queue drop probability based on output queue congestion as in the claimed invention.

For at least the reason that the combination of Gracon, Bonneau, Barri and Cloonan neither describe nor suggest the claim limitation of "...dropping packets at the ingress port of the network device according to the ingress drop probability to reduce congestion at the output queue..." as described in claim 1 or "...wherein the ingress logic is also coupled to an ingress queue of the network device for controlling an ingress queue drop rate based upon the level of congestion at the output queue" as recited in claim 14, the independent claims are patentably distinct over the references, and it is requested that the rejection be withdrawn. The dependent claims 2-13 and 15-28 include further patentable limitations, but are allowable for at least the same reasons as their parent claims.

Allowable claims

The Examiner has indicated that claims 9, 24 and 39 are objected to as being dependent upon a rejected base claim, but has indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant submits that the claims are all in condition for allowance, but reserve the rights to make the suggested amendments.

Conclusion

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicants' Attorney at the number listed below so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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